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SECTOR 5 —CHART INFORMATION

SECTOR 5

SOUTHEAST COAST OF AFRICA—RAS KANZI TO PANGANI BAY

Plan.—This sector describes the SE coast of Africa from Ras Kanzi to Pangani Bay, including the island of Zanzibar and off-lying dangers.

Ras Kanzi to Dar es Salaam

5.1 Ras Kanzi (7° 01'S., 39° 33'E.) may be distinguished by the number of palmyra palms near it, which are not seen elsewhere on this coast, and by Puna Hill, which rises about 4.5 miles SW. The hill is especially conspicuous when seen from the S. The point is marked by a light.

Ras Kimbiji (6° 59'S., 39° 33'E.), is a low projection 2 miles N of Ras Kanzi; the coast near the point is the highest land in the vicinity. A rounded hill, 46m high, is remarkable due to its isolation; it helps to identify Ras Kimbiji.

Between Ras Kimbiji and Ras Dege, 8 miles NNW, the coast consists of white sandy beaches varied by reddish cliffs, about 20m high, 3 miles N of Ras Kimbiji, and other red cliffs 3 miles farther N. This part of the coast is fronted by reefs which extend 0.7 mile offshore.

Funga Miza (6° 55'S., 39° 32'E.), awash, is located 3.5 miles NNW of Ras Kimbiji, 1.5 miles offshore. The reef lies on the S end of a narrow coral bank, which has depths from 5.5 to 7.3m, a rock, in the N part of the reef has less than 2m.

Temporary anchorage in 26m can be obtained about 1 mile offshore anywhere along this shore when the monsoon is light, except in the vicinity of Funga Miza. Care must be taken to approach the anchorage slowly as the depths decrease suddenly from 64 to 28m, and from that again to much shallower water.

5.2 Latham Island (Fungu Kizimkazi) (6° 54'S., 39° 56'E.) is a low, dangerous coral island lying in the approach to Zanzibar Channel. The surface of the island shines white in the sun, but it is difficult to see with a bad light or at night.

Tides—Curr ents.—The current over the bank is variable, but in the deep water on each side of it the current is constantly N, with varying strength. At a distant 5 miles W of Latham Island the current becomes much weaker. The current off this part of the coast depends greatly on the direction and strength of the wind, and in the Southwest Monsoon it sets strongly NW past Mbawakuni, but nearer the shore it is not so strong. In the NE Monsoon, if the wind is fresh, the N set is only experienced with a rising tide, but at this season the current is very variable.

The current of the rising tide sets to the N in the S part of Zanzibar Channel, and in a contrary direction at the N end, thus meeting at HW at a point near the center, the position of which depends much upon the direction and strength of the wind; the other tidal current sets in the reverse way from the central point of meeting, toward the N and S ends of the island. During the Northeast Monsoon the tidal currents are weak.

The direction of the tidal currents at the anchorage of Zanzibar is extremely variable, as they meet near there. In the Southwest Monsoon, off Ras Shangani, the tidal current runs chiefly N at all times of tide, but a vessel anchored under the

lee of the point lies in the eddy, and may swing in any direction.

Anchorage.—The greater part of the bank on which the island lies has depths of 9.1 to 18.3m, over sand, interspersed with large lumps of coral. The water is so clear that the bottom has been plainly seen by moonlight when in a depth of 18.3m.

Anchorage may be taken up to the N or S of the island, depending on the monsoon. The cross swell on the bank renders the anchorage uneasy.

5.3 Ras Dege (6° 52'S., 39° 28'E.) is formed of cliffs 3m high, which quickly rises to a height of 9m close W; it is backed by some rounded hills.

Between Ras Dege and Ras Rongoni the coast is fronted by islands and reefs, which skirt the coast.

Mwamba Kikwero, a reef lying 3 miles NW of Ras Dege, is steep-to and dries 0.3m in places.

Outer Sinda (6° 49'S., 39° 24'E.), an island, 15m high, lies 5 miles NW of Ras Dege. Inner Sinda, 12m high, lies 0.5 mile SW of Outer Sinda. There is white sand at the N and S extremities of the island. A chain of small islets lie on the E edge of the drying reef, which surrounds these two islands.

Millard Bank (6° 48'S., 39° 24'E.) with a least charted depth of 5.5m near its N extremity, and its S part about 0.5 mile N of Outer Sinba; the bank can not be distinguished until close to.

Outer Makatumbé (6° 47'S., 39° 20'E.) is an island, 12m high, lying 3.5 miles WNW of Outer Sinba; a light stands in the NW part of the island. Hammond Rock, 2m high, lies 0.5 mile NW of the light near the extremity of the reef, which encircles Outer and Inner Makatumbé.

Inner Makatumbé, 15m high, lies on the reef 0.5 mile SW of Outer Makatumbé; a quarantine station is situated close within the SW extremity of the island.

5.4 Mbawamaji Harbor (6° 51'S., 39° 22'E.) ([World Port Index No. 47005](#)) lies between the reef which surrounds Inner and Outer Sinda Islands and the coast between Ras Koronjo (6° 51'S., 39° 23'E.) and Ras Mjimwema; this harbor lies within the harbor limits of Dar es Salaam.

Tides—Curr ents.—The tidal currents at the anchorage are strong, and toward HW, especially in the Northeast Monsoon; the current runs rapidly E, and causes a vessel to swing to the swell in a most unpleasant manner.

Anchorage.—The best anchorage during the Southwest Monsoon is in 18m, sand and mud, with the SW sandy point of Inner Sinda Island bearing 141°, and the N extremity of Outer Sinda Island bearing 054°.

The best anchorage in the Northeast Monsoon is in 10m, sand, with the SW extremity of Inner Sinda Island bearing 015°, distant about 0.2 mile.

Mjimwena Oil Terminal, consisting of a mooring buoy, is situated 1.5 miles NE of Ras Mjimwema; a submarine pipeline lies between the point and the buoy. The oil terminal is within the jurisdiction of the port of Dar es Salaam; it can

accommodate tankers up to 100,000 dwt and a draft of 16.8m. Berthing is carried out in daylight only, but vessels may leave the mooring at any time.

Pilotage.—Pilotage is compulsory. The ETA messages should be sent within 6 hours of clearing the loading port and 72 and 36 hours in advance of arrival at the pilot station. When within 20 miles off the Dar es Salaam signal station, call the station on VHF channel 12 or 16. The pilot, who also acts as mooring master, embarks 2 miles N of the oil terminal.

It is generally advisable to remain underway if awaiting the pilot, however, it has been reported that in good weather tankers may obtain temporary anchorage in a depth of 18m with Outer Makatumba Light bearing 250°, distant about 1.3 miles.

5.5 Dar es Salaam Bay (6° 47'N., 39° 18'E.), the outer anchorage for the port of Dar es Salaam, is entered between Outer Makatumba and Ras Kankadya (6° 44'S., 39° 17'E.), 5 miles NW.

The E side of the bay is formed by an extensive bank with depths of less than 5m, which fronts the coast between Ras Mjimwema and Ras Rongoni, a rocky point with red cliffs, on which stands a green obelisk, 2 miles WNW.

The W side of the bay consists of low cliffs and sandy beaches terminating in Ras Kankadya, a rocky peninsula forming the W entrance point of the bay; from the NE the peninsula appears as an island.

The red cliffs of Ras Chokir and Ras Upanga lie at the head of the bay 1 and 2 miles NW, respectively, of Ras Rongoni.

Tides—Currents.—In the approaches to Dar es Salaam Bay, the general direction of the tidal current is NW on the rising tide and SE on the falling tide; among the off-lying islands and reefs these directions are often reversed.

Depths—Limitations.—Daphne Reefs, consisting of three groups of reefs with depths from 3.2 to 5.5m, lie on the NW side of the entrance to Dar es Salaam; the outermost group lies 2.5 miles SE of Ras Kankadya. A dangerous wreck lies on the reefs between the middle and innermost groups. The outermost group is marked by a lighted buoy, moored near its SE end.

Pilotage.—Pilotage is compulsory S of a line drawn 270° from Outer Makatumba Light for all vessels over 200 grt. The pilot boat meets vessels about 1.5 miles WNW of Outer Makatumba Light on request. Vessels should send their ETA 72 and 36 hours in advance.

Anchorage.—Dar es Salaam Bay affords anchorage in depths of 13 to 15m, sheltered during the South Monsoon, but during the Northeast Monsoon a considerable swell sets in with strong winds. Anchorage with good holding ground may be obtained within an area bound on the NW by the alignment of Kidandoni Range Lights, on the E by the alignment of Ras Rongoni Range Lights, and on the S by a line drawn 282° from Outer Makatumba Light. Ships should not anchor on the range lines or S of a line drawn 270° from Outer Makatumba Light.

Directions.—Vessels approaching Dar es Salaam Bay from the SE should steer for Ras Kankadya on a bearing of 287°, which will lead about 1.5 miles N of Millard Bank. When the lights on Ras Kidandoni come in range 247°, steer on that heading to pass S of Daphne Reefs.

When the vessel is about 1 mile NNW of Hammond Rock, steer for the range lights on Ras Rongoni on a heading of 193°, then proceed to the entrance channel of Dar es Salaam Harbor.

If the vessel is anchoring in the bay, course may be shaped for the anchorage when Outer Makatumba Light bears 118°.

Vessels approaching from the N steer with Outer Makatumba Light bearing not less than 180° and then alter course when Ras Kidandoni lights come in range 247° and proceed as previously directed.

Caution.—Kankadya Patch (6° 44'S., 39° 19'E.), with a least depth of 9m, lies in the N approach to Dar es Salaam Bay.

Dar es Salaam (6° 49'S., 39° 18'E.)

World Port Index No. 47010

5.6 Dar es Salaam is approached from Dar es Salaam Bay and is entered between East Ferry Point and West Ferry Point, 0.2 mile W; both of these points are low and sandy. The harbor is land-locked and sheltered and consists of a city and a medium-sized natural harbor.

Winds—Weather.—During the Southwest Monsoon, Dar es Salaam Bay is well-protected but during the Northeast Monsoon, a considerable swell sets in.

The weather is humid and there is little diurnal variation of temperature.

Tides—Currents.—In the approach to Dar es Salaam Bay, the flood current sets in a general NW direction, and the ebb sets SE, but among the islands and reefs lying off the coast in this vicinity, these currents in some cases set in the reverse directions.

The monsoonal currents, however, acting in conjunction with or in opposition to the tidal currents, cause the direction of the resultant currents to be variable and uncertain, which effects navigation.

During springs the current is strong in the channel, especially toward or after LW, as it is then confined to the channel itself, the strongest current being generally about 2 hours after LW. The ebb current sets straight across the shallow water toward Inner Makatumba Island, and, when North Reef is submerged, caution is also necessary, as at such times the current sets across the reef.

High water slack occurs at about the time of HW, but the time varies considerably with astronomical and meteorological conditions. During the rainy season the duration of the flood current is reduced and the duration of the ebb current is correspondingly increased. At neaps during the rainy season the flood current may be hardly perceptible at the surface. Local authorities should be consulted regarding the time of slack water on any particular day.

In a vessel that can cross the bar the best time to enter the harbor is at LW, when the reefs on either side can generally be seen, but a vessel of deeper draft should enter at HW, and in no case should entering be attempted during the full strength of the incoming nor leaving with a similar condition of outgoing current.

At spring tides vessels should stem the tide. It is not advisable to use the channel during the full strength of the tide, that is, between two and four hours on either side of HW or LW.

At neap tides it is safe for a vessel to enter or leave the harbor at any time, irrespective of the direction of the tide.

Care should be exercised when the ebb current is running, especially by an outward bound vessel, to keep the range beacons in line as the ebb current sets across the E bank.

Depths—Limitations.—There is a depth of 6.6m in the entrance channel. The entrance channel is entered about 0.7 miles N of Ras Rongoni. There are some sharp bends in the channel, which has a least width of 90m between East Ferry Point and West Ferry Point.

The harbor may be entered by twin screw vessels up to 183m in length and a draft of 10.1m at MHWS and a draft of 9.1m at MHWN. Single screw vessels with a length not exceeding 175m may enter; larger vessels may enter with the permission of port management. The general cargo terminal is 0.8 mile long, with a depth of 9.1m alongside. The container terminal is 0.3 mile long, with a depth of 10.1m alongside.

Vessels with a draft of 12.2m can be accommodated alongside, and vessels with a draft of 9.1m may anchor in the harbor. Ro-ro vessels can be moored stern-to between quays berths 6 and 7.

Dredging in the harbor, reported in 1997, limits vessel movements to daylight hours only.

Aspect.—The shore of Dar es Salaam is broken and indented and presents to the eye a low outline, nearly uniform in height, but much diversified by alternate sand beaches and cliffs. About 12 miles inland a chain of mountains, rising to a height of from 366 to 457m, extends SW and terminates abruptly. When seen from the NE, Kankadya Peninsula appears as an island; a sandy patch about 0.7 mile within its extremity is conspicuous with the sun in the E.

Ras Chokir (6° 49'S., 39° 10'E.), about 1 mile SE of Ras Upanga, the cliffs are red and about 9.1m high. On the former point there is a large two story hospital, which can be seen from a long distance. Other conspicuous objects are the Government House, nearly midway between the red cliffs and West Ferry Point and a flare situated about 1.5 miles SSW of Ras Rongoni. A conspicuous black flagstaff stands close E of Ras Makabe.

Pilotage.—Pilotage is compulsory for vessels over 200 nrt. Pilots board about 2.2 miles NNW of Ras Rongoni.

Signals.—A conspicuous signal station, with a tower and a red roof, stands on East Ferry Point.

The following signals are displayed from the signal station:

1. A black flag at the mast head by day or three red lights in a vertical line by night—Entry prohibited.
2. A black ball by day or three lights, white, red, white, in a vertical line by night—Departure prohibited.

The following distant signals are displayed:

1. A black square on a white background—Entry prohibited.
2. A white ball on a black background—Departure prohibited.

Anchorage.—The inner harbor will accommodate up to nine vessels of moderate size at mooring buoys and anchorages. Vessels are required to moor with two anchors.

Directions.—Vessels approaching Dar es Salaam Bay from the S will first sight the Sinda Islands, the outer island should be given a berth of 2.5 miles to clear Millard Bank by keeping Gunja Peak in range with Ras Kankakya, bearing 287°, and steering on this range until the range lights on the W shore of the bay bear 247°. The latter range should then be followed, passing between the reef extending N from Hammond Rock and Daphne Reefs, until the lighted range bearing 193° is picked up and so on into the harbor using the ranges shown on the chart.

When approaching the bay from the N, Mbudya Patches and Kankadya Patch must be avoided, and the entrance approached with Makatumba Light bearing not less than 180°.

If intending to anchor in the bay, the selected anchorage can be steered for after Outer Makatumba Light has been brought to bear 118°.

Zanzibar Channel

5.7 Zanzibar Channel separates Zanzibar Island from the mainland; its S entrance lies between Ras Dege (6° 52'S., 39° 29'E.) and Ras Kizimkazi, the S extremity of Zanzibar Island; its N entrance lies between Ras Kikogwe, the S entrance point of Pangani Bay, about 90 miles NNW of Ras Dege, and Ras Nungwi, the N extremity of Zanzibar Island, about 24 miles SE of Ras Kikogwe.

Caution.—On the mainland side the reefs are sometimes not easily distinguished because of the discolored water caused by the alluvium of the rivers, but on the island side the water is generally clear, so that the reefs can be plainly seen. The positions of the sandheads on the coral reefs usually change with the monsoons. Submarine cables are laid across Zanzibar Channel between Dar es Salaam and Zanzibar and the mainland N.

Zanzibar

5.8 Zanzibar (6° 07'S., 39° 21'E.) is the largest and most important of the many coral-lined islands lying off the E coast of Africa. The island is undulating with ranges of hills generally running N and S with plains between them.

The coast in most places consists of low, steep cliffs. The island is surrounded by a coral reef which is, in general, steep-to except in the inlets. The reef dries about 0.5m and is flat except its outer edge is somewhat higher than its average level. The off-lying reefs are similar.

Winds—Weather.—The Southwest Monsoon, known as the Masika season, sets in about March, bringing the heaviest of the rains, and is strong for two months or more, rain being always prevalent, but by July or August the wind settles down to a steady breeze and the rain clears off, and this continues until October, when the SW wind gets fitful and uncertain, and rain and squalls may again be expected.

By the end of November the Northeast Monsoon sets in, sometimes quietly, sometimes with a burst, and after an interval of a fortnight, blows steadily until February when it begins to die away, but these seasons are so uncertain and subject to such variation that any description can be only an approximation.

Near the land the monsoon does not blow steadily in on direction. During the Southwest Monsoon, and especially in the Zanzibar Channel, it is usual in the morning for the wind to be from W to SW, freshening up to 1000.; after that it falls higher for a time, but, hauling around to the S, freshens up again about 1300., finishing in the evening at SE; when this takes place the weather is usually fine. If the wind does not commence at W in the morning and yet veers to the S, there is more chance of rain but squalls and occasionally rainy days may be expected all the year round.

After the Northeast Monsoon is well established the wind in the morning is generally NNE, veering to ENE about 1400.

Cyclones are unrecorded prior to 1872, but in April of that year one swept over the island from the NE, destroying everything in its path, but leaving the S end untouched.

At Leven Bank, in the Southwest Monsoon, the current always runs to the NNW from 1.5 to 3 knots, during the Northeast Monsoon it decreases to about half that rate.

As a rule the current of the rising tide sets to the S and the other current in a contrary direction, but both currents are much influenced by the wind. In the Southwest Monsoon, at neaps, there is a continuous N current and during this season the greatest irregularity in the tides prevail. The currents are strongest off Ras Mwanda.

The tidal wave coming from the E makes the times of HW at full and change nearly identical for all this coast, only varying a little on either side of 4 hours 00 minutes. In Zanzibar Channel, the great difference between neap and spring ranges, the latter being generally 4.0 or 4.2m and the former about 2.7m, makes a considerable difference in the appearance of the reefs and shores both of the mainland and island, especially in the case of the large area of coral banks in the vicinity of Zanzibar town, and this should be constantly remembered, and any passages new to the navigator should be taken, if possible, at LW. The HW interval at full and change at the S end of Zanzibar Channel is 3 hours 55 minutes; spring rise 8.2m and neaps rise 1.8m.

5.9 Zanzibar—East coast.—From Ras Kizimkazi (6° 28'S., 39° 30'E.), the SW extremity of Zanzibar, the coast trends in a general NE direction to Ras Makunduchi. A light is situated on the coast about 3 miles SSW of Ras Makunduchi.

Kizimkazi Patch (6° 28'S., 39° 33'E.), with a least charted depth of 10.9m, lies about 1.5 miles offshore, 2 miles SSE of the light.

Ras Michamvi (6° 07'S., 39° 30'E.) lies 16 miles NNW of Ras Makunduchi; the point should not be rounded too closely.

Chwaka Bay is entered between Ras Michamvi and Ras Uroa. The tidal currents set strongly and regularly in and out of the bay.

Mnemba Island (5° 49'S., 39° 23'E.) is small and sandy, with tall casuarina trees which may be seen at a distant of 10 miles. The islet is surrounded by a reef, which extends 3.3 miles N and 2.3 miles E

5.10 Zanzibar—Southwest coast.—Ras Kizimkazi appears as a long, low wooded hill, and is so rounded that the appearance of the land alters with every change of the vessel's position. In a position 2 miles NW of Ras Kizimkazi there is a

small sandy bay with some tall coconut trees which show up well from certain directions.

A steep-to drying reef fringes the coast adjacent to Ras Kizimkazi; it breaks heavily.

Between Ras Kizimkazi and **Ras Mkita** (6° 19'S., 39° 18'E.) the E side of Zanzibar Channel is fronted by numerous islands and dangers.

Bedford Break (6° 31'S., 39° 25'E.) has a least charted depth of 9.1m; it is the farthest S of Pungume Patches. A least depth of 5.5m lies on the patches about 7.7 miles W of Ras Kizimkazi. The bottom is plainly visible when nearing Pungume Patches, but their vicinity should be avoided by deep draft vessels.

Pungume (6° 26'S., 39° 20'E.), a wooded islet about 12m high, is situated on the S part of a drying reef about 10 miles WNW of Ras Kizimkazi. A light is situated on the SW extremity of Pungume.

Kwale (6° 23'S., 39° 17'E.), a wooded island 9.1m high, stands on a drying reef 3 miles NNW of Pungume. A sand cay 0.3m high, is situated on the drying reef about 0.7 mile N of Kwale.

Kipwa Gini, a small coral head, lies in the position 6° 22'S, 39° 16'E and is not easily seen.

Menai Bay is entered between **Ras Masoni** (6° 25'S., 39° 25'E.) and Pungume Island. The chain of islets and reefs extending S to Pungume Island shelter the outer part of Menai Bay; good holding ground in depths from 22 to 28m may be found anywhere in this part, but in the strength of the SW Monsoon sheltered anchorage can only be obtained N of Pungume Island or between Niamembe and Miwi Islets to the ENE. A small vessel may proceed still higher up the bay, and anchor off the small islet of Sume, in about 10m, but at this location the bay begins to shoal, and the navigation becomes intricate, so that the eye and chart must be the guide.

There is convenient night anchorage for small vessels, especially during the Northeast Monsoon, on Pungume Patches.

A submarine power cable passes close NW of Kwale. Vessels should avoid anchoring in the vicinity.

5.11 Ras Mkita (6° 19'S., 39° 18'E.) is the SE extremity of a flat peninsula about 12m high.

Ras Fumba (6° 19'S., 39° 17'E.), 0.8 mile WNW of Ras Mkita, is a low rocky point. Nguruwe Island, 18.3m high to the tops of the trees, lies on a drying bank 0.2 mile S of Ras Fumba.

The coast from Ras Fumba to Ras Buyu, 5.7 miles NW, consists of cliffs alternating with white sandy bays. From Ras Buyu to Ras Chukwani, about 1 mile farther N, the cliffs are the highest and most extensive on this coast.

The coast between Ras Chukwani and Ras Mbweni (6° 12'S., 39° 12'E.) 2 miles NNW is low, but near the latter point are some red cliffs, owing to their brighter color, are more remarkable than those SE of Ras Chukwani.

Mwamba Ukombe (6° 19'S., 39° 14'E.) extends NW for about 4.5 miles from a position about 3 miles WSW of Ras Mkita. This reef dries only in places at LW springs.

Tele Islet, 7.3m high, with some off-lying rocks, lies on the reef 3.5 miles WNW of Ras Fumba. Ukombe Islet, 3m high, lies on the NW part of Mwamba Ukombe, 1 mile NNW of Tele Islet.

Chumbe Island (6° 17'S., 39° 10'E.), marked by a light, is a small wooded island on the NW part of Mwamba Chumbe, an extensive reef which dries in patches.

5.12 Southern Pass.—Southern Pass is entered between Chumbe Island (6° 17'S., 39° 10'E.) and Pwakuu, an extensive reef 4.5 miles WNW; a sandbank on the W part of the reef dries 3m.

Nyange, another extensive reef, lies with its SE part 2.7 miles NW of Chumbe Island; a sandbank, which dries 2.4m lies on the N part of the reef.

Ariadne Bank (6° 20'S., 39° 10'E.), a small bank with a least depth of 2.4m, lies in the S approach to Southern Pass, about 3.5 miles S of Chumbe Island.

Boribu (6° 20'S., 39° 05'E.), a reef which dries 2.4m, lies 5.2 miles W of Ariadne Bank. Outer Boribu, with a least depth of 9.1m, lies 1.7 miles WNW of Boribu, it can be seen under favorable conditions.

Tambare (6° 17'S., 39° 04'E.), a coral reef, is comparatively steep-to. A sandbank on the NW end of the reef dries 2.1m. Outer Tambare, with a least depth of 2.1m, lies 1.5 miles W of the NW end of Tambare; it can always be seen.

5.13 Southern Pass—Inner part.—Mtwana (6° 14'S., 39° 11'E.), 2 miles SW of Ras Mbweni, consists of three shoals with a least depth of 1.8m; it is marked on its NW side by a lighted buoy.

Kisiki, a reef which dries 0.9m, lies 1.5 miles W of Ras Mbweni. Southern Pass is about 0.4 mile wide between the two above shoal areas; it is referred to as "the narrows".

Within "thenarrows" the E side of Southern Pass is formed by the coast between Ras Mbweni and Ras Shangani 2.5 miles NNW. Some white cliffs from 18 to 24m high, extend over 1 mile N of Ras Mbweni.

A chain of reefs and shoals extends NW from Kisiki to Zanzibar Harbor and forms the W side of Southern Pass.

A sandspit, with a depth of 1.5m, extends 0.6 mile N from Kisiki.

Pange (6° 11'S., 30° 09'E.) lies within the Zanzibar harbor limits, 1.5 miles NW of Kisiki. A large sandbank, which dries 1.8m, is located on this reef. Shoal ground, with a least depth of 2.7m near the outer extremity, extends 0.5 mile N of Pange.

Fungu Chawamba (6° 10'S., 39° 09'E.), a reef which dries 0.9m, lies about 2 miles WSW of Ras Shangani; it is steep-to and can generally be identified. Several detached coral patches lie within 1.2 miles of the reef.

5.14 North approach—Yambwa Ngome (6° 00'S., 39° 07'E.) are two flat reefs located 3.5 miles offshore, 10 miles NNW of Ras Shangani; they may be easily identified by the discolored water over them.

Fawatu, an extensive reef which dries, is located on the W side of the approach 1.5 miles S of Yambwa Ngome. The reef is easily distinguished but must be approached with caution.

Jiddawi Shoal (6° 04'S., 39° 11'E.), a coral pinnacle with 8.5m over it, lies in the approach to English Pass.

Seagull Shoal (6° 05'S., 39° 11'E.), a small shoal with a least depth of 2.7m, lies in the fairway of English Pass 1.7 miles SSE of Jiddawi Shoal; it is marked on its SE side by a lighted buoy.

Chapani (6° 08'S., 39° 11'E.), Kibandiko, and Changa are three islands that lie on an extensive reef which extend about 3 miles WNW from a position 2.2 miles NNE of Ras Shangani; the E end of the reef is marked by a lighted buoy. These islands lie within Zanzibar harbor limits.

English Pass (6° 08'S., 39° 12'E.), the pass generally used by vessels approaching Zanzibar from N, lies between the coast and the shoal extending E of Chapani. It has a least depth of 11.3m and a least width of 0.2 mile between the 10m curve.

Lights in line 168° lead from the N to "thenarrows" ESE of Chapani, and lights, astern, bearing 042° lead farther into the harbor area.

Zanzibar (6° 10'S., 39° 11'E.)

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5.15 The harbor at Zanzibar is an open roadstead located off **Ras Shangani** (6° 10'S., 39° 11'E.), on the W side of the island. The harbor limits are indicated on the area chart.

Tides—Curr ents.—MHWN tides rise 2.7m and MHWS tides rise 3.9m. Tidal currents in South Pass run NNW and are stronger on the flood than on the ebb. In English Pass, tidal currents run N and are stronger on the ebb than on the rising tide. Vessels may enter or leave at any state of the tide.

Depths—Limitations.—In the designated anchorage N of Ras Shangani, there is a least charted depth of 11m. The maximum vessel length permitted in the anchorage is 335m, with a maximum beam of 33.5m and a maximum draft of 9.8m.

West Wharf, the main wharf, extends S from the S entrance point of the dhow harbor. The wharf, which can accommodate vessels up to 10,000 dwt, has depths alongside of 8.9m, decreasing to 5.4m at its S end. The wharf is exposed to prevailing onshore winds.

North Wharf, perpendicular to West Wharf, is located at the entrance to the dhow harbor. The wharf has a maintained depth of 5.4m along its whole length.

Aspect.—The white buildings of the town are visible for a considerable distance. The following objects, with their position relative to Ras Shangani, are conspicuous:

1. The former British Residency, a white building with a red roof and with a tower and a flagstaff at its S end—0.3 mile SE.
2. A radio mast, 64m high—0.5 mile ESE.
3. A clock tower on the government building—0.2 mile NE.
4. A chimney, 29m high—0.7 mile NE.
5. Livingstone House—1 mile ENE.

Pilotage.—Pilotage is compulsory and 24 hours advance notice should be given. Pilots may be contacted on VHF, 24 hours a day. Pilots for southbound vessels embark off Seagull Shoal, and for northbound vessels off Mtwana (6° 14'S., 39° 10'E.). Vessels awaiting pilots anchor in the vicinity of boarding places. Suggested entry is between 0600 and 1800 hours.

Anchorage.—Good anchorage can be obtained in 12 to 22m, either N or S of Ras Shangani, in any position with the exception of the prohibited anchorage area. Naval vessels anchor or moor in any position reserved for them by the port officer. Mooring buoys, some belonging to the government and

others to lines of vessels calling at the port, are moored in various positions close N of the town.

Directions.—The principal approaches to the port of Zanzibar are through Southern Pass and through English Pass.

5.16 Zanzibar—Northwest coast.—Bet el Ras (6° 07'S., 39° 07'E.), on the E side of English Channel, is a low rocky point; the ruins of a large white castellated palace are situated on the point.

Between Bet el Ras and Ras Uso wa Membe the 10m curve is only about 0.3 mile off the coast, so that vessels can keep near it and thus avoid the off-lying dangers.

Between Ras Uso wa Membe (5° 54'S., 39° 12'E.) and Ras Nungwi, the N extremity of Zanzibar 12 miles NNE, the coast is fronted by an extensive drying reef. Tumbatu Island is located on this reef and Mkokotoni Harbor lies within the reef.

Pale Hill (5° 54'S., 39° 15'E.) is conspicuous and lies at the NW end of a ridge with a steep W face extending S; the ridge rises gradually on its E side. The tops of the coconut palms and other trees on Pale Hill rise to a height of 87m. Donge Hills, 119m high and covered with coconut palms, reach their summit 2.5 miles S of Pale Hill and are the highest part of the N end of Zanzibar.

Tumbatu Island (5° 49'S., 39° 13'E.), with its S extremity 2.2 miles NNE of Ras Uso wa Membe, is low and flat, rising slightly to the SW. The tops of the trees are from 18 to 30m high, and the coast, except for a portion of the E side, is formed of low and often overhanging cliffs from 3 to 18m high.

Ras Bwechano (5° 51'S., 39° 13'E.), the W extremity of Tumbatu Island, is located about 1 mile NNW of Ras Kiyomoni, the S extremity of the island.

Ras Kinunduni, 4.5 miles NNE of Ras Bwechano, is the N extremity of Tumbatu Island. Shoal water with a depth of 2.1m at its extremity, extends 1.5 miles NNE from Ras Kinunduni.

Mwana Wa Mwana (5° 46'S., 39° 13'E.), a coral islet covered with dense scrub, lies on the reef extending N from Ras Kinunduni; a light is situated on the NW extremity of the islet.

Glenday Patches (5° 55'S., 39° 10'E.), comprised of numerous pinnacles of rock and sand, lie with the NW patch 2 miles WSW of Ras Uso wa Membe. A lighted buoy marks the NW extremity of Glenday Patches.

Shearwater Patches consists of numerous pinnacles on a bank 10 miles in length, lying 4 miles offshore between Ras Uso wa Membe and Mwama wa Mwama.

Langdon Rocks (5° 53'S., 39° 07'E.), two rocks, with a depth of 0.9m, lie 0.7 mile apart at the S extremity of Shearwater Patches, 5 miles W of Ras Uso wa Membe.

Wright Rock, with a depth of 0.9m, lies 5 miles SW of the light on Mwama wa Mwama. An isolated patch, with a depth of 4.3m, lies 1.2 miles NE of Wright Rock. A dangerous wreck lies between Wright Rock and the 4.3m patch.

Dalrymple Shoal (5° 47'S., 39° 06'E.), with a depth of 4.9m, lies about 6.5 miles WSW of Mwama wa Mwama, at the N end of a detached bank extending N from Shearwater Patches.

Nankivell Rock (5° 43'S., 39° 14'E.), with a depth of 5.5m, lies 2.5 miles NNE of the light on Mwama wa Mwama.

Ras Nungwi (5° 43'S., 39° 18'E.), the N extremity of Zanzibar, is a low sandy point covered with dense scrub; the land rises gradually inland. Coconut palms grow in profusion on the point.

Leven Bank (5° 38'S., 39° 18'E.) lies with its shallowest part about 5.2 miles N of the light on Ras Nungwi. It affords good temporary anchorage in a least depth of 21m when the winds are light.

5.17 Mkokotoni Harbor (5° 50'S., 39° 16'E.) can be entered from N or S. The S entrance lies between Ras Uso wa Membe and Tumbatu Island; the N entrance lies between the reef fringing the coast S of Ras Nungwi and that extending from Mwana wa Mwana.

Tides—Curr ents.—In Mkokotoni Harbor, the general direction of the tidal current of the rising tide is S, and that of the falling tide, N, but both tidal currents are much influenced by the winds, and during the South Monsoon, there is, at neaps, a continuous N current. The tidal currents are strongest off Ras Mwanda (5° 53'S., 39° 13'E.).

Anchorage.—In the Southwest Monsoon, there is good anchorage W of Ras Nungwi, in the N approach to Mkokotoni Harbor, in 18m, over sand, with the light on the point bearing 068°, distant nearly 3 miles.

An anchorage for a small vessel in the harbor in 8m, mud, is off Mkokotoni Village, with the S tangent of Tumbatu Island bearing 283° and the E tangent of Popo Island bearing 008°.

For a large vessel, a better berth is farther N in 14.6m, mud, with the S extremity of Tumbatu Island bearing 238° and the NE tangent of Popo Island bearing 340°; here the tidal current is not so strong.

Directions.—To enter Mkokotoni from the S channel, if the buoys are in position, it is only necessary to pass between those marking the bar, otherwise the eye and the chart are the guides, as there are no ranges. After passing the bar bring the conspicuous Pale Hill, which is located about 2 miles ESE of Ras Mwanda to bear 104° and steer for it, passing the sandbank on Mmawali Sand at a distance of 0.4 mile. When Popo Island begins to open off Tumbatu, the center reef will be on the port beam, in which case round it by eye, giving the visible part a good berth, as it deepens very gradually; if the buoys are in position pass between them. After passing the red barrel buoy alter course to the ENE until Kigunguli Hill bears 043°, this course then leads to the anchorage. Care must be taken to avoid the reef that extends about 1 mile SSW of Makutani Islet.

The water is thick, concealing any shoal with more than 3.6m on it, and as the current is strong, care must be taken. There is no swell and the bottom is generally soft.

To enter Mkokotoni Harbor from the N, from about 1.5 miles off Ras Nungwi, steer for the lighthouse on Mwana Wa Mwana on a bearing of 228° until Pale Hill, well open E of Popo Island, bears 182°. From this position, which is about 1 mile E of Nankivell Rock, alter course for Pale Hill on that bearing and maintain it until Kigunguli Hill bears 115°. A good lookout should be maintained for the reef which extends from the coast S of Ras Nungwi, and which can generally be seen. Course should then be altered to 165°, keeping a sharp lookout for the reef and spit extending NNE of Popo, which is not easily seen and is marked by a buoy.

When Pale Hill, in line with the district officer's house situated on the S shore of the harbor, bears about 183°, steer for it on that range which is said to lead through the narrow channel abreast the N end of Popo Island.

When the E extremities of Popo open off each other, alter course to pass about 0.3 mile from it and when the center of Popo is abeam, all dangers have been passed and anchorage can be chosen as desired. There is considerable swell at times N of Popo, but it does not fetch home through the narrows to the harbor.

As the tides in this harbor on the ebb and the flood do not always follow the channel, caution should be observed when entering or leaving Mkokotoni Harbor.

Dar es Salaam to Ras Nunge

5.18 From **Ras Kankadya** (6° 44'S., 39° 17'E.) to Ras Mbegani, 25 miles NW, the coast is chiefly sandy, indented by creeks, and is backed by mangrove swamps or dense bush.

Numerous islands and dangers front this stretch of coast and lie up to 6 miles offshore.

Bongoyo Island (6° 42'S., 39° 16'E.), located 1.2 miles N of Ras Kankadya, presents a uniform appearance of stunted trees on cliffs 12m high. A sandy bay on its NE side appears white and distinctive in the morning. Pangavini Island (6° 40'S., 39° 14'E.), is a small rocky islet located on a coral reef 1.5 miles NW of Bongoyo Island; the reef surrounding the islet dries 0.5m.

Mbudya Island, about 1 mile NE of Pangavini Island, is 18m high, lies on the NW part of an extensive drying reef; the W side of the reef is moderately steep-to, but the E side has numerous off-lying patches and is dangerous to approach. Mbudya Spit, with a least charted depth of 5.5m extends about 2 miles SE of the island.

Mbudya Patches, a number of small patches with depths of 5.5 to 9.1m, lie between 3 miles E and 3 miles NE of Mbudya Island; these patches should be avoided.

Fungu Mkadya, with a least depth of 0.5m, lies about 1 mile NW of Mbudya Island. A spit, with a dangerous rock on it extends 0.8 mile NW from the reef.

Fungu Yasin (6° 36'S., 39° 14'E.) is an extensive drying coral reef, with a sandy islet on its NW extremity, located 1.5 miles NNW of Fungu Mkadya. A ridge, with a least known depth of 5.5m, extends ESE to Mbudya Patches.

Msasani Bay is entered between Ras Kankadya (6° 44'S., 39° 16'E.) and the SE extremity of Bongoyo Island, about 1.2 miles N. The bay affords good anchorage during either monsoon and is safe and easy of access from the SE.

Anchorage.—In the Northeast Monsoon, the best anchorage is in 14m, sand, W of the middle of Bongoyo Island, with its NW extremity bearing 348°, distant about 0.8 mile.

During the Southwest Monsoon, an anchorage more to the N, about 0.5 mile off the NW extremity of Bongoyo Island, should be taken, or if preferred, in the S part of the bay in about 10m, with Ras Kankadya bearing 086°.

5.19 Kunduchi Harbor (6° 40'S., 39° 14'E.), the anchorage SW of Mbudya Island, affords shelter during the NE Monsoon for a vessel requiring temporary anchorage, although that within Msasani Bay is preferable.

Anchorage.—Anchorage may be obtained during the SW Monsoon to the N of a 5.5m patch, in about 18m, with the N extremity of Mbudya Island bearing 085° and the middle of Pangavini Island 178°. Anchorage may also be taken up in a

similar depth with the W end of Mbudya Island bearing 020° and the N end of Pangavini Island bearing 219°.

There is good anchorage SW of Fungu Yasin during either monsoon in 29m, opposite the middle of the reef, with the sandhead beacon bearing about 031°, distant 0.5 mile. The safest approach to the anchorage is around the N end of the reef.

Mbweni Village (6° 35'S., 39° 08'E.) is rendered conspicuous by some white tombs and large mango trees.

Ukatani Reef (6° 35'S., 39° 11'E.), 2 miles W of the beacon situated on Fungu Yasin, has a depth less than 2m.

Kitapumbe Reefs are two drying reefs about 1 mile apart located 3.2 miles NW of Ukatani Reef.

Mshingwi (6° 27'S., 39° 01'E.), a small coral reef, which dries 3.3m, lies 6.5 miles NW of Kitapumbe Reefs. There are depths of 16m close around the reef, and the sea always breaks when the reef is covered.

Ras Lwale (6° 27'S., 38° 59'E.) is the W extremity of a spit, 4 miles in length, which parallels the coast. The spit is comprised of sand and coral and is covered with brush.

Ras Mbegani is a low mangrove point located 1 mile W of Ras Lwale.

Bagamoyo Roadstead (6° 25'S., 38° 55'E.) is entered between Ras Mbegani and Ras Nunge. The roadstead is shallow for some distance from shore, but affords anchorage in 7m or 9m.

Aspect.—The most conspicuous object at Bagamoyo is a long white building, with a red roof and a tower at each end, situated in the S part of the town, about 2.5 miles S of Ras Nunge. A mission, surrounded by trees, is situated about 1 mile NW of the white building and makes a good mark from seaward.

Anchorage.—Vessels of moderate draft should anchor in 9m. There is a heavy swell in the anchorage during both monsoons.

Ras Nunge to Pangani

5.20 Ras Nunge (6° 24'S., 38° 54'E.) is a mangrove-covered point projecting well out from the coast.

From Ras Nunge to Ras Machuisi the coast trends in a NNW. Ras Utondwe, a low sandy spit may be identified from N by its light colored sand.

Wami enters the sea 3.7 miles NNW of Ras Utondwe, through a mangrove swamp. Between this river and Ras Machuisi the coast is low and swampy; mangroves fringe the mouths of the numerous rivers and creeks, which enter the sea along this stretch of coast.

Mbwakuni (6° 22'S., 38° 59'E.) is a drying reef lying 5.5 miles NE of Bagamoyo on the direct route from Zanzibar Harbor; the reef is steep-to.

Fungu Miko (6° 15'S., 38° 58'E.) are two reefs lying between 5.7 and 6.7 miles NNW of Mbwakuni. The sea generally breaks on these reefs, which dry about 2m.

Winde Patches are two flat coral reefs, which usually break, lying about 2.2 miles NW of Fungu Miko. The S reef, marked by a buoy, dries 2m; the N reef dries 1m.

Wami Patches (6° 06'S., 38° 56'E.), consisting of eight separate coral patches, lie 6 miles N of Winde Patches; some of the patches are awash and all are steep-to. These patches are

dangerous as the outflow from Wami and other rivers make the water so thick that at high tide they cannot be distinguished.

The S extremity of Udoe Hill ($6^{\circ} 10'S$, $38^{\circ} 35'E$), bearing 264° , leads 1 mile S of Wami Patches.

5.21 Ras Machuisi ($5^{\circ} 57'S$, $38^{\circ} 59'E$) is only a slight projection but it may be identified by a dense grove of trees standing on it. A reef, awash at LWS, lies near the edge of the coastal bank between 1 and 2 miles ENE of Ras Machuisi.

Pangani lies about 32 miles NNE of Ras Machuisi. The intervening coast is sandy to a position about 3 miles SSW of Pangani where it becomes rocky with low cliffs.

Genda Genda ($5^{\circ} 34'S$, $38^{\circ} 39'E$) is a prominent isolated mountain 701m high, which is easily identified by its two sharp peaks.

Mwamba Buiuni ($5^{\circ} 53'S$, $38^{\circ} 52'E$), close within the 10m curve, dries 2.4m; it lies 5 miles NE of Ras Machuisi. Buiuni Mdogo, 1.75 NE of Mwamba Buiuni, is an isolated reef, with a rock, awash, at its W end; it is steep-to.

Mkwaja Patches ($5^{\circ} 49'S$, $38^{\circ} 55'E$), four small steep-to coral reefs marked on the SE side by a buoy, lie 10 miles NE of Ras Machuisi. The sea rarely breaks on these patches and they are difficult to see. Mwamba Alek, with a least charted depth of 1.8m, lies 2 miles NE of Mkwaja Patches.

Kipumbwe Reefs lie with their S extremity about 14 miles S of Pangani Bay. There is a deep navigable channel between the outer and inner Kipumbwe Reefs, and farther N between the reefs and the shore, it has smooth water even in a strong monsoon. It is useful to coasting vessels when the reefs can be plainly seen.

Fungu Datcha ($5^{\circ} 33'S$, $39^{\circ} 04'E$), a coral reef which always breaks heavily when it is not awash, lies 6.5 miles SSE of Pangani Bay. A patch, with a least charted depth of 1.8m, lies 0.4 mile SW of Fungu Datcha.

Maziwi Island ($5^{\circ} 30'S$, $39^{\circ} 04'E$) is small, sandy, and covered with conspicuous casuarina trees.

There is fair anchorage W of Maziwi Island during either monsoon, with more protection than in Pangani Bay. The water is deep, but care must be taken not to anchor too close, as the reef is very steep. In the Southwest Monsoon a good berth is in 28m, sand, with the N edge of the reef bearing 055° , and Maziwi Island 090° . In the Northeast Monsoon a better berth is farther S, in 31m, sand, with Maziwi Island bearing 058° .

Mwamba Mawe ($5^{\circ} 26'S$, $39^{\circ} 05'E$), a coral reef, which dries 1m, is located nearly 4 miles N of Maziwi in the approach to Pangani Bay. The reef is moderately steep-to and the sea generally breaks on it at half tide; when not breaking its position is generally indicated by the green color of the water over it.

A shoal, with a depth of 3.7m, lies 0.5 mile N of Mwamba Mawe; it seldom breaks.

Pangani ($5^{\circ} 26'S$, $38^{\circ} 59'E$) is located at the mouth of the Pangani River, which flows into the head of Pangani Bay. The port consists of a town and a very small, shallow, natural harbor.

The largest vessel that has entered the harbor was 76m long, with a beam of 12.2m, and a draft of 3m. As a rule, a vessel with a length of more than 70m and a draft of more than 3.9m should not enter the river.